

**Abstract**

There is provided a semiconductor device capable of ensuring a complete enhancement-mode operation and  
5 realizing a power transistor excellent in the low-distortion, high-efficiency performance. On a surface of a substrate (1) composed of single crystal GaAs, a second barrier layer (3) composed of AlGaAs, a channel layer (4) composed of InGaAs, a third barrier layer (12) composed  
10 of InGaP and a first barrier layer (11) composed of AlGaAs are stacked in this order, while placing in between a buffer layer (2). Relation of  $\chi_1 - \chi_3 \leq 0.5 * (Eg_3 - Eg_1)$ , where  $\chi_1$  is electron affinity of the first barrier layer (11),  $Eg_1$  is a band gap of the same,  $\chi_3$  is electron  
15 affinity of the third barrier layer (12), and  $Eg_3$  is a band gap of the same, is satisfied between the first barrier layer (11) and the third barrier layer (12).